

Appl. No. : **09/997,396**
Filed : **November 28, 2001**

REMARKS

Claims 1-50 and 52-53 are pending in the present application. Of these, Claims 33-45 and 51 have been withdrawn from consideration as being directed to a non-elected species. Claim 1 has been amended to indicate that depositing at least one of the first or second ferromagnetic layers comprises depositing a metal oxide by ALD and subsequently reducing the metal oxide to elemental metal. Support for this amendment can be found, for example, in original Claims 7 and 10 and in paragraphs [0028] through [0032] of the specification.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-32, 46-50 and 52-53 stand rejected under 35 U.S.C. § 102(e) as anticipated by Gates (U.S. Patent No. 6,203,613). With respect to independent Claim 1, the Examiner found that in Example 8 (Column 11, lines 24-65) Gates discloses depositing a first ferromagnetic layer, a dielectric layer and a second ferromagnetic layer by atomic layer deposition. Claim 1 has been amended to indicate that at least one of the first or second ferromagnetic layers is formed by depositing a metal oxide by ALD and subsequently reducing the metal oxide to elemental metal. Gates does not teach or suggest such a process. In Example 8 of Gates, the ferromagnetic layers are made by reacting manganese and iron nitrate with iron and by reacting cobalt nitrate with hydrogen. Thus, there is no teaching of forming a dielectric layer by reducing a metal oxide as claimed.

The Examiner also refers to Gates at column 4, lines 40-51 for teaching of depositing a ferromagnetic layer by depositing a metal oxide by ALD and subsequently reducing the metal oxide to elemental metal. However, while this section of Gates refers to reactants generally there is no teaching of depositing a metal oxide layer and subsequently reducing it to elemental metal.

As there is no teaching or suggestion in Gates of forming a ferromagnetic layer by depositing a metal oxide and reducing it to elemental metal, Applicants request withdrawal of the rejection of Claim 1. In addition, as Claims 2-13 depend from Claim 1 and contain all of the features thereof in addition to further distinguishing features, the rejection of these claims should be withdrawn as well.

With respect to Claim 14, the Examiner again refers to column 11, lines 55-65 and column 4, lines 40-51 of Gates for teaching of reducing a magnetic metal oxide layer to a magnetic elemental metal layer. As discussed above, there is simply no teaching of depositing a

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magnetic metal oxide layer in Gates, much less of depositing a magnetic metal oxide layer and reducing it to a magnetic elemental layer in a method as claimed. Thus, Applicants submit that Claim 14 should be allowed.

With respect to Claim 15-19, the Examiner refers to disclosure in Gates at column 3, lines 63-67 which states that the invention provides an ALD process to form a structure which contains "alternating films of metal oxides, metal nitrides and metals in any combination." The Examiner simply states that the claimed method would be "inherent in the product and process of the prior art."

Applicants respectfully submit that the sections of Gates referred to by the Examiner simply recite reactants and film types. There is no teaching or suggestion of any particular arrangement of films that would form a magnetic memory cell, much less of a method of fabricating a magnetic memory cell as claimed. As clearly stated in MPEP §2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In addition, the elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Here, Gates does not teach each element of Claim 15 or the arrangement of the elements. For example, Gates does not teach or suggest depositing a first non-magnetic metal oxide layer over the first magnetic layer and converting the first non-magnetic metal oxide layer to a first non-magnetic metal layer as recited in Claim 15. In addition, Gates does not teach or suggest a particular structure that would inherently disclose the claimed method. As a result, Applicants submit that Claims 15-19 are allowable over Gates.

The Examiner rejected independent Claim 20, finding that Gates discloses a method of fabricating a magnetic structure by depositing a plurality of metal oxide layers by ALD and converting at least one of the metal oxide layers to elemental metal. In support of this conclusion, the Examiner again refers to Example 8, column 11, lines 24-65. As discussed above, Gates does not teach or suggest in Example 8, or anywhere else for that matter, depositing and reducing metal oxide layers at all, much less depositing a plurality of metal oxide layers on a substrate by ALD, wherein at least two of the metal oxide layers differ in composition, and

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converting at least one of the metal oxide layers to elemental metal as claimed. Thus, Applicants request the withdrawal of the rejection of Claim 20.

Claims 21-32 depend from Claim 20 and contain all of the limitations thereof, in addition to further distinguishing features. As a result, Applicants request the withdrawal of the rejection of these dependent claims as well.

Claims 46-50 were rejected for the same reason as Claims 15-19, as discussed above. In particular, the Examiner found that the disclosure in Gates that structures can comprise alternating oxide, nitride and metal films "in any combination" inherently anticipates these claims. Again, in order to anticipate a claim, the prior art reference *must teach each and every element of the claim and the elements must be arranged as required by the claim*. MPEP §2131. Applicants respectfully submit that Gates does not teach or suggest a method of fabricating a sensing element of a read-head comprising depositing a first ferromagnetic layer by ALD, depositing a conductive layer over the first ferromagnetic layer and depositing a second ferromagnetic layer over the conductive layer as claimed. Thus the rejection of Claims 46-50 should be withdrawn.

Finally, with respect to Claims 52-53, the Examiner again refers to Example 8 and column 4, lines 40-51 of Gates for teaching of depositing a ferromagnetic metal oxide by ALD followed by reduction of the metal oxide to an elemental metal. As discussed above, Gates does not teach or suggest such a process in these sections or elsewhere. As a result, the rejection of Claims 52-53 should be withdrawn.

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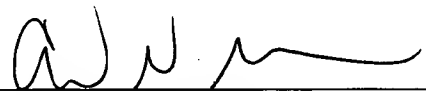
Conclusion

In view of the amendment and arguments presented above, Applicants submit that the present application is in condition for allowance and respectfully request the same. If any issues remain, the Examiner is invited to telephone Applicants' representative at the number provided below in order to resolve such issues promptly.

Respectfully submitted,

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